

Among the personalities of modern Romanian painting, the name of Adam Băltănuș (1898-1982) is that of honesty and integrity, of respect for traditional assets. His art, in its whole evolution, has continuously been implanted in the Romanian reality and organically connected to the national artistic inheritance. An artist of calm meditation, full of tenderness in front of natural motifs, Băltănuș prelates, to his paintings, simplicity and sincerity. Convinced that the quality of a work of art is determined, first of all, by the intensity of the feeling and the nobility of the human message, under whose signs intimate reactions of the creative process are developed, the painter combined, in his art, the vigor and firmness of convictions with modesty and kindness characteristic of his Moldavian descent, which culminated his students at the Bucharest Fine Arts Institute. His refinement and sensitivity for colors coupled with a spirit of equilibrium and harmony, the discreet distillation of the feeling far measure, deciphered in his paintings, make his creation an art of authentic visual joy.

In his Moldavian landscapes with broad perspective ("Mountain Landscapes", "At the Farm", "Early Spring", "Yard with Poplars"), his portraits of sensitive psychological investigation ("Reading", "Self-Portrait", "Two Figures"), his "flowers" and still lifes, with a natural composition where everything is harmoniously blended, impress by the honesty and sincerity of execution and by the simplicity of the means the painter uses. Bound in a melancholy contemplation, the artist depicted on the easel also the slums: Street in Hugi, Old House, At the Barrier, Slums in the Province, Street in Bucharest, Sighisoara Landscapes. The expressiveness of his palette can also be defined by the discreet translations of autumn landscapes, with subtle qualities of atmosphere. Equally impressive are the canvases in which he reflected Dobrogea's landscape or the sea: Village on the Seashore, Houses in Dobrogea, Road to the Sea, Finally, Băltănuș was attracted by the human factor integrated in the landscape, thus investigating other facets of reality. Paintings like Fair Periphery, Market Day at Cimpulung, Last Fair, Fair at Tigru Nou, Fair at Curtea de Arges, Cimpulung's Market are quite representative of his creation. They betray his inclination towards large crowds, the bustle and hubbub specific of fairs, mixing picturesque and dynamism with diversity and lyricism.

M. DUMITRU ■



**ROMANIAN NEWS**

INFORMATION AND COMMENTARY  
WEEKLY PUBLISHED BY  
THE ROMANIAN NEWS AGENCY  
AGENCE PRES

IN ENGLISH AND  
FRENCH: Editor and administrative office: 17-19, rue de la Paix, 75002 Paris. Tel.: 01-42-55-17-18. Fax: 01-42-55-17-19. E-mail: romanian.news@wanadoo.fr

IN ROMANIAN: Editor and administrative office: 17-19, rue de la Paix, 75002 Paris. Tel.: 01-42-55-17-18. Fax: 01-42-55-17-19. E-mail: romanian.news@wanadoo.fr

# ROMANIAN NEWS

ELEVENTH YEAR  
20 (529)  
MAY 20  
1988  
16 PAGES — 3 LEI

## A VAST PROGRAMME OF ASSERTION OF WORKER DEMOCRACY

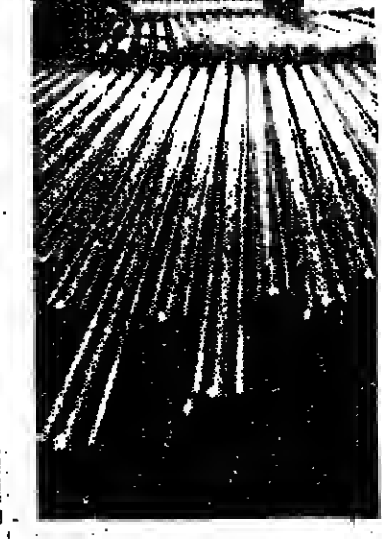
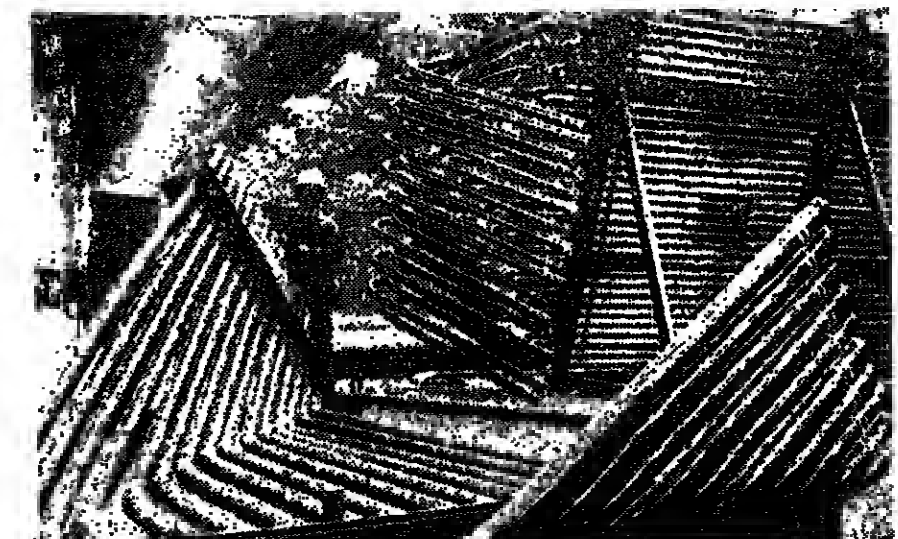
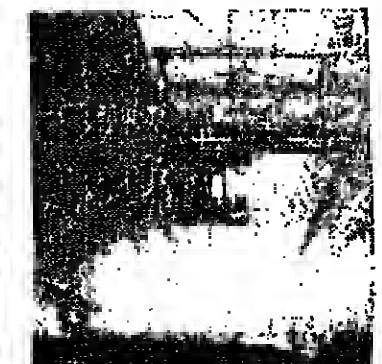
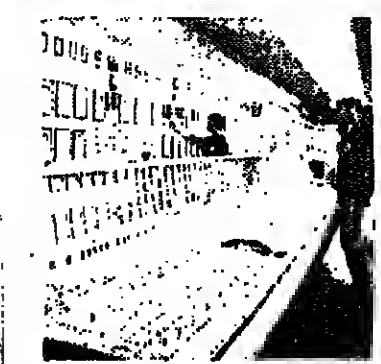
In his Exposition on questions of socio-economic management, biological and political-educational work, and of the international situation made by the General Secretary of the Romanian Communist Party, Nicolae Ceausescu, at the April 29 meeting of the Executive Political Committee, a highly important place was assigned to the analysis of some of the most significant questions of socio-economic management and planning in the current stage, with a view to establishing the necessary measures for the further improvement of the whole activity in full accordance with the resolutions of the Thirteenth Congress and National Conference of the Party in the perspective of the unfinished mission of the on-going quinquennial's fundamental goal — Romania's transition to a new stage, that of a medium developed socialist country.

The realistic, profoundly analytic spirit in which socio-economic management and planning questions are approached from the standpoint of scientific socialism principles at a time of significant transition of the national economy from extensive to intensive-type development, when broad prospects have been opened for the assertion of a new quality in all fields, confirms once again the exemplary way in which the party fulfills its highly responsible mission of leading political force in the work of socialist construction.

The strong assertion of the party's leading role in Romanian society after the Ninth Congress has been the lasting guarantee of the unshakable and comprehensive process of improving socio-economic organization, management and planning, apt to turn in better advantage society's material, technical and human resources, to give ample scope for manifestation in the tremendous creative values of the Romanian people, brilliantly continued along the centuries by remarkable contributions to the world civilization patrimony.

The outstanding achievements scored particularly after the Ninth Congress, which have radically changed Romania's very status among the large family of world states, fully support the conclusion, firmly emphasized by the Party General Secretary's exposition, that "the general line and the strategy of development are fully correct, meeting both the objective requirements, the general laws,

(cont. on p. 3)



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## THE SPRINGS OF QUALITY

One of the most complex drives of the last few years is now in progress in Romania, aimed at the intensive development of the economy. Conceived in two stages — the first one took place in 1985, the second opens the 1987-1988 period — this drive is based on programmes of measures by branches, industries, enterprises and enterprises worked out by specialists to research, education and production.

Efficiency norms for the whole 1985-1988 quinquennium were set in 1985. Some of them concern the volume of activity per 1,000 lei worth of fixed assets, which is to grow by 38 per cent in 1988 compared to 1985. Others refer to the acceleration of the rotation of circulating means. During the current quinquennium, the social product is to increase at an average annual rate of 8.1 per cent, compared to the 5.4 per cent increase in the necessary circulating means. In industry, where the volume of circulating means will grow by 26.3 per cent compared to 1985 and banking credits will be reduced, self-financing is to reach 79.5 per cent in 1988, against 69.3 per cent in 1985.

As a result of cost reduction, profitability and profits will record a dynamics superior to that of production, according to plan provisions. While manufacturing production in basic sectors will rise by 35.4 per cent in 1988 compared to 1985, profits will grow by 248.4 per cent, of which some 72 per cent will be the outcome of the reduction of spending per 1,000 lei of manufacturing output. The profitability rate is to stand at about 42 per cent in 1988, compared to 19.6 per cent in 1985.

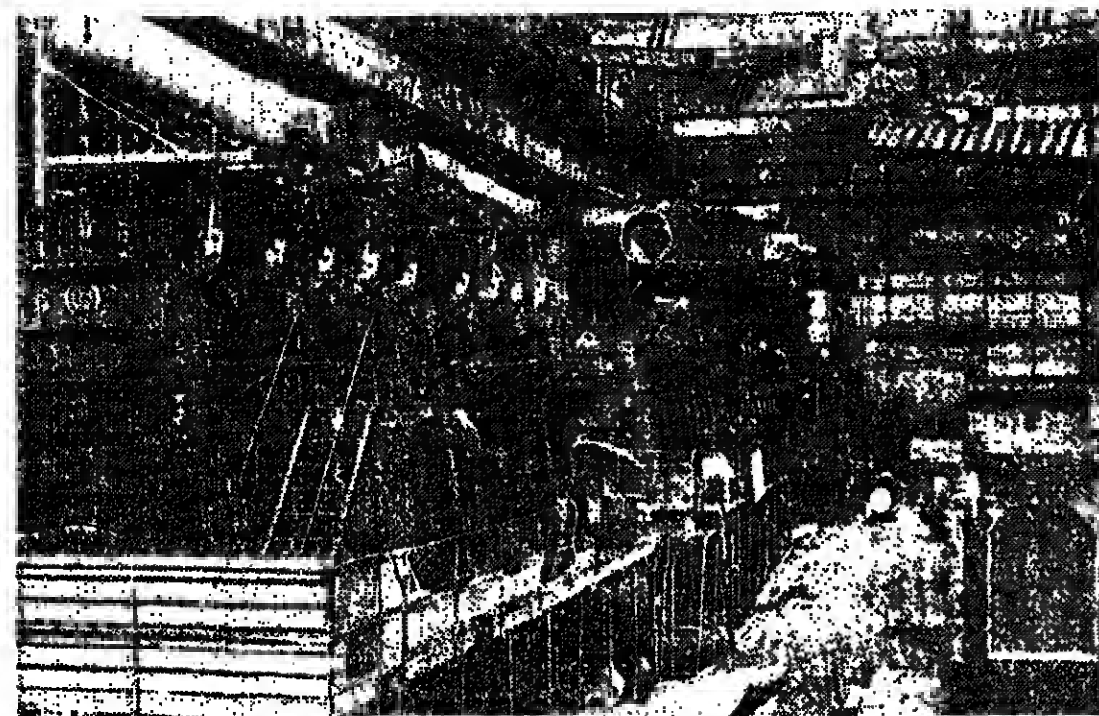
Some 150 modernization programmes are under way for the automation of all manufacturing technological lines are being reorganised, of manufacturing and assembly technology are being reorganised.

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## IS THERE A CEILING OF HEAT ENGINE PERFORMANCES?

The development and diversification of Romanian heat engine production called for the setting up of a forum to coordinate research in this field. More than a decade ago, the National Institute of Heat Engines was founded, which assumed the task of integrating research with productive activity, and of training engineers. Three years after its inception, the first national symposium on heat engine construction technology was held under the aegis of the young research institute. The symposium highlighted the existence of a powerful continent of researchers with a valuable creative potential. The ensuing years further justified the initiative of organizing this new laboratory, by involving research in productive activity, with notable results.



Lucian Teodorescu, director of the National Institute of Heat Engines was rather reserved in assessing the achievements in his own field of activity. This is due to his dissatisfaction with the present limits of the efficiency of the heat engine, which falls to secure it a privileged part among energy consumers. Considered from this angle the heat engine seems to be a spoil yet indispensable fuel consumer. But, the same as the greatest sportsman has a "ceiling" for his own skills, the scientist, too, has his limits. However, beyond his limits, one cannot deny the great utility of this type of engine, its wide-scale utilization in the key sectors of everyday life. Hence the last few years' achievements of the National Institute of Heat Engines. "Our institute," my colleague told me — "has produced the diesel-gasoline convertible engine for all-terrain cars and utility vans. The dieselization and supercharging of the gasoline engine has resulted in a high-performance engine for cars. The same performance has been attained by heavy traction vehicles. Moreover, diesel engines have been developed for ships, for trucks, for-

six-cylinder tractors, which has enabled one to diversify the range of farming machines. The heavy engine has also been modernized through the adaptation of the turbosupercharger, an

adaptation which has been generalized to engines meant for oilfield and railway equipment."

"These the institute offer only solutions, only prototype engines, or can it also manufacture engines on a small scale?"

"We manufacture unique or limited series of engines. For instance the biogas-fueled Diesel engine power units have been homologated, as well as the propeller units for the lifeboats equipping our sea-going fleet."

## A LOW-CONSUMING CAR

"Of late" — my colleague went on — "our institute has created the first fully Romanian-designed city car, Dacia 1100. This year it will go into serial production in Timisoara. This baby car was carefully conceived at our institute and we already regard it as a success of our activity. Naturally, we are waiting for the buyers' opinion too."

"What are the current limits of research?"

"We have set out to update all the engines being manufactured in this country, in keeping with world standards. We aim to reduce consumption and specific weight. We have reason to expect performance above world average values in future, which will increase the competitiveness of Romanian heat engines. Interdisciplinary collaboration with other institutes in the field, as well as with the respective departments of the polytechnic institutes is already a guarantee of significant achievements."

Engineer Roda Albotescu has offered us some extremely interesting information on the contribution of the laboratory for supply processes and equip-

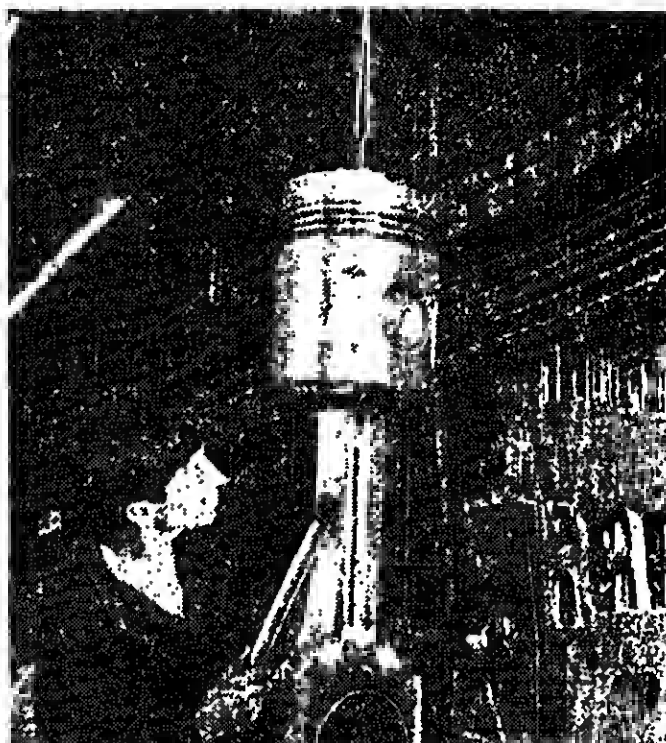
## OPTIMISTIC ABOUT THE FUTURE

Felling in the same sphere of concern — finding new efficient solutions for cutting fuel consumption, improving the engines' technical operating parameters — are the endeavours recorded at the laboratory for fuels, lubricants, tribology and polluting processes. A reserve solution has been homologated here: the fueling of engines with a mixture of 50 per cent gasoline and 50 per cent methanol. This method offers the advantage of using low-grade gasoline (ON 75). A last minute

novelty is a method of using methanol with diesel engines. In collaboration with ICETP Ploiesti, new types of injectors with self-lubricating properties have been homologated, using mixed and synthetic oils in poor-lubrication conditions.

Moreover, researchers have been directed with alacrity towards results towards reducing the running-in period, which would implicitly lead to a lower fuel consumption and greater reliability.

The manufacture of elastomeric



elastomeric parts has also become an efficient widely applied solution. The elastomeric coating of the engine and the gear in eight types and sizes for engines ranging between 30 and 8-10,000 HP has been produced at the laboratory. Nistor Dinu, spoke to me about the efforts being made to achieve equipment for our engines that should meet the most severe requirements, such as the American federal rules.

Important sources of diesel efficiency are offered by the utilization of heavy or very fuels for large engines.

Nistor Dinu also referred to the utilization of ceramic materials in building heat engines. Forecasts for the end of the millennium show that the ceramic engine will completely meet long-term requirements: Let us only mention that such an engine boasts an up to 50 per cent higher efficiency. The use of higher efficiency. The use of ceramic elements considerably reduces the consumption of materials which are in short supply, sound and chemical pollution, the weight and complexity of construction of heat engines. And this set of constructional solutions, some of them in a forward stage of completion, justify an optimistic vision of the future of heat engines.

"In their opinion, the reserves held by the current Dacia 1300 car engine allow of a 15 per cent reduction of fuel consumption."

MARILENA TUTILA



## THE CONFIRMATION OF PRODUCTION

Orchestrating form research towards the immediate problems of large-scale production is actually a response to the interest taken by the latter in scientific novelty. Most significant is the fact that this year the state farming enterprises, just like the cooperative farms have purchased large amounts of seeds from the newly homologated strains. Special interest was aroused by the Aricson (early, disease resistant, recommended for Transylvania), Albota (better adapted to the podzol — the southern sub-Carpathian area), Aniversar (early, meant for northern Moldavia), Funchulea 3 (intensive, resistant to bending and blight 30 (very early) strains.

With barley, the last homologated strains — Miral, Productive and Picecop — cover nearly a whole area cultivated last autumn. They provide for a 35-45 per cent increment over the older strains and makes harvesting possible 11-15 days earlier. Two new intensive breeds of the autumn durum wheat — Hodor and Topas — have been created, which are suited to the pedoclimatic conditions in this country.

After the TF-2 critically strain created at Funchulea, a new ge-

otype — Vladaea — is now credited with a higher biological potential likely to turn to best account the less fertile pedoclimatic in the hilly areas.

Over the last two decades, 58 hybrids of corn have been created. The recently homologated ones yield 15 tons of grain per hectare and 20 tons of grain per hectare. Hybrids such as Funchulea 20, Funchulea 420 and Funchulea 418, Succova 108, Podul Hotet 101 or Turda 102 have confirmed their quality not only on experimental plots but also on large areas. In most diverse pedoclimatic conditions.

Now, when nearly the entire quantity of seeds has been sown, engineer Nicolae Garmianu thinks he has every reason to be optimistic. The ongoing agricultural year has started under the best auspices. The precipitation, within normal limits, has reduced the reserve of water in the soil. The early spring favoured the plants having acquired sufficient amount of thermal degrees. So, every remnant exists for farmers to reach the ambitious objective lying before agriculture this year: obtaining 35 million tons of cereals.

GIL OSTROVEANU

## WHAT WE SOW, HOW MUCH WE REAP

The Institute of Research in Cereals and Technical Crops of Funchulea and the territorial stations II subordinates have provided potential forms and seeds of superior biological categories for the whole area. They have done this for the area under sunflower. Naturally, the seeds, differing from one area to another, were accompanied by detailed recommendations regarding the cropping technology, depending on the climatic conditions.

"This year each researcher has participated personally in the spring campaign in a large teaming unit, granting specialized technical assistance", said engineer Nicolae Garmianu, technical director of the Funchulea Institute.

Crop maintenance and pest fighting recommendations have already been issued for the autumn cereals too. Mentionworthy is the fact that a considerable share among cereals is held by new strains created at Funchulea and other experimental stations.

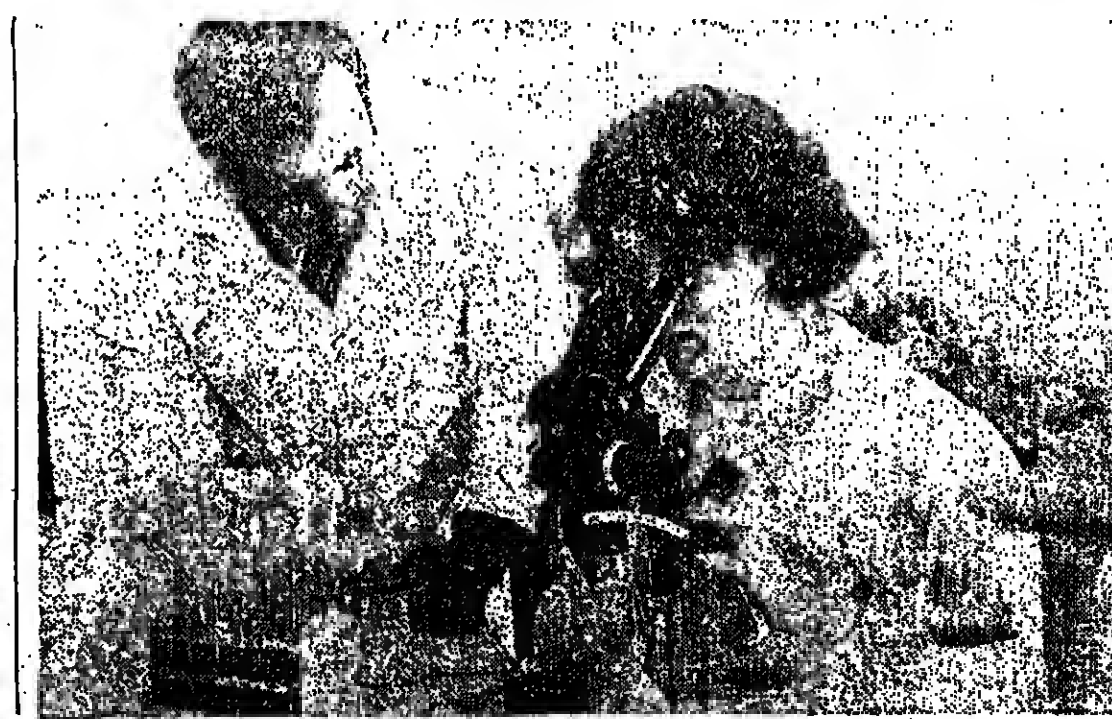
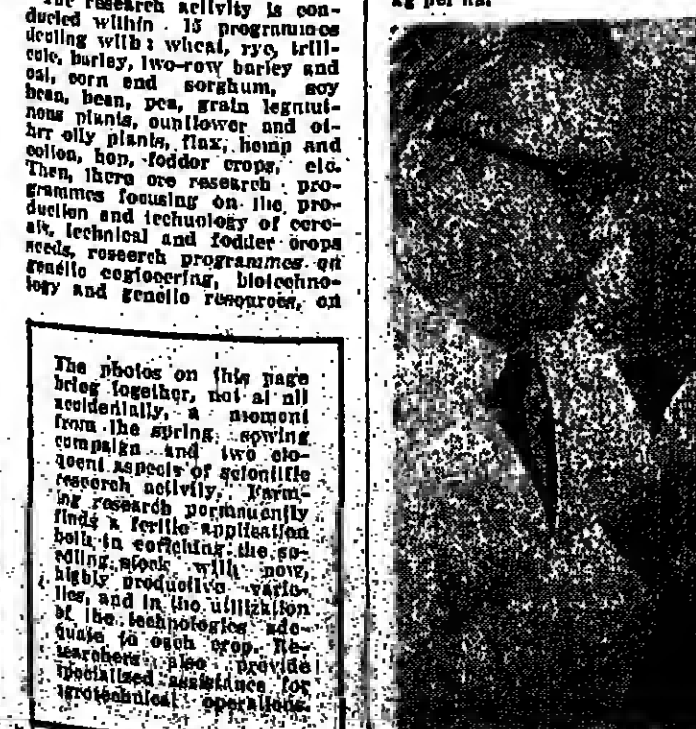
## RESEARCH PROGRAMMES

"Fundamental research accounts for about 30 per cent of the Funchulea Institute's activity", said engineer Nicolae Garmianu. "Genetic, physiological and biochemical studies of the plants pursue the creation of new strains and hybrids boasting a big yield potential, a high content of useful substances, and resistance to diseases, and resistance to environmental conditions. The much-sought-after strains must also tolerate well mechanized work, adapt themselves to intensive cultivation and turn to best account the water and fertilizer. Equally complex are the questions related to the optimum cropping technology."

Then our colleague facilitated us an extensive look at the programmes worked out by the institute in the context of the new Romania.

The research activity is conducted within 15 programmes dealing with: wheat, rye, triticale, barley, two-row barley and oat, corn and sorghum, soy beans, bean, pea, grain leguminous plants, sunflower and oil-seed rape, rapeseed and cotton, hop, fodder crops, etc. Then, there are research programmes focusing on the production and technology of cereals, technical and fodder crops, seeds, research programmes of genetic engineering, biotechnology and genetic resources, etc.

The photos on this page bring together, not at all accidentally, a moment from the spring sowing campaign and two aspects of scientific research activity. Farming research permanently finds a fertile application both in enriching the soil, sowing, sowing with novelty, productivity, variety and in the utilization of the technological advances to each crop. Researchers also provide specialized assistance for technological operations.



## A PROFITABLE MODEL

Gheorghe Leac is a veterinarian. Until 1978, life followed its natural course, but that year marked the beginning of a new path at the end of which was waiting him the office of manager of the inter-cooperative economic association for poultry breeding at Olteu. Four cooperative farms — Viteazii, Garzda, Necesti and Olteu — had decided to bring together their monetary funds and labour force to set up an avian culture complex specializing in egg production.

In 1978, foundation of the inter-cooperative economic association for poultry breeding at Olteu was decided. The inter-cooperative economic association for poultry breeding at Olteu was decided. The inter-cooperative economic association for poultry breeding at Olteu was decided.

have doubled their monthly wages in the meantime.

Few people know that it takes a long time to bring poultry breeds — in this case, Mollie Albota 70 — to their maximum yield. It takes them about 7 weeks to reach an optimum weight and enter the productive period. Work starts with selecting the vigorous specimens. There follow the intensive growth stages. Artificial lighting stimulates all the necessary phases. Optimum temperature is about 30°C. Unless these "rules" are observed, the birds fail to produce the expected yield. And mind you, it is not a matter of one, ten or even a hundred birds, we are talking about years of such birds.

Inter-cooperative economic association for poultry breeding at Olteu was decided. The inter-cooperative economic association for poultry breeding at Olteu was decided.





## MAPS OF THE HUMAN BRAIN

Special programmes on computer-aided medical assistance. The importance of computers in deciphering the known elements of the electroencephalogram. The computer-aided study of the cerebral potentials of man and animals worked out through automatic data processing. Tridimensional analyses of the human brain carried out on the independent 100, M-18 and M-118 Romaniat-matic computers.

There are only a few of the facilities having riveted the attention of the specialists gathered in Tirgu Mures for the medical centre of long-standing tradition for the "Computer-Assisted Electroencephalography" symposium.

The event, staged jointly by the Ministry of Health, the Union of Medical Sciences Societies, the Research Centre of the Academy of Medical Sciences and headed by one of the modern amphitheaters of the Cluj Hospital in town, brought together

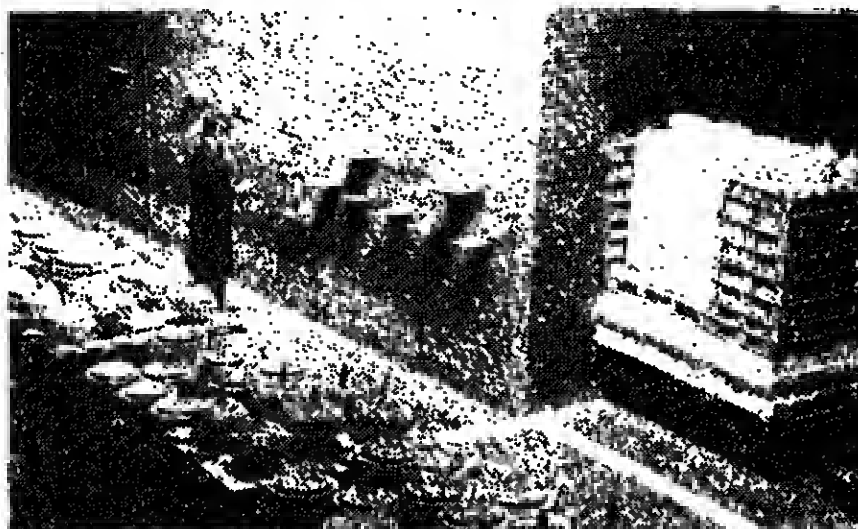
doctors, biologists, mathematicians, informatics scientists from Bucharest, Cluj, Timisoara, Satu Mare and, naturally, Tirgu Mures.

The choice of Tirgu Mures as host of the meeting was not accidental. Here, following a consistent research track — both applicative and fundamental — numerous remarkable results have been obtained, some of them being firsts in this field. Thus, the neurology clinic headed by professor Liviu Popovici (the author of over 500 scientific works published in Romania and abroad, where numerous scientific monographs, treatises and encyclopedias have been compiled, has recently obtained the first computerized colour electroencephalographic map, which is a world first. Our photo features Dr. Slog, one of professor Liviu Popovici's main collaborators, monitoring the human brain's electric activity on a computer display.

M. CONSTANTIN ■

## OLD METHODS, NEW METHODS

One of the most recent achievements of the Poroloseni Enterprise in Alba Iulia is the cup glazing machine — a complex plant having remarkable technical and functional properties providing for a substantial growth of the products' quality. The plant follows another recent technical creation — the glass coating installation — which, while replacing the old separating method, allows of a better separation of glass particles from the glazing mass and thereby improves the aesthetic look of the products. The Poroloseni Enterprise has also developed a fast setting binding kiln making it possible to improve the manufacturing process at the respective stage. The high performance of the equipment translates among others into a growth of labour productivity and lower energy consumption.



## THREE OIL HORIZONS

The geological team of the Maromures Geologist Prospecting and Exploration Enterprise working at Viscu de Sus has finalized a new research project in just one year. We are referring to the commissioning in the Bala Bologa oilfield of the extrag-

tion machine, which will make it possible to start exploiting the Colbu deposit at the end of this millennium (until now such an undertaking would have lasted five-to-ten years). The new well, equipped with a Romanian-made ex-

traction machine, will be required for the application of actual water capturing and draining technologies as well as modern technical solutions for mounting the extraction machine.

## TEV - 100

This is the first Romanian wind turbine with a power of 100 kw. Its experimental model has been recently finalized within the Laboratory for Solar Power Capitalization at the Scientific Research and Technological Engineering Institute for Farm Machines and Equipment in Brasov.

The model mounted in the Institute's testing grounds — a wind turbine with vertical axis, with two curved blades has an electric generator with a power of 100 kw, the most powerful one made in this country so far. The turbine has an aerodynamic shape, a high resistance and can function even when the wind has low speeds — between 4 and 30 m/sec.

The experts of the Institute of Scientific Research and Technological Engineering for the Mechanical Engineering Industry have worked out a rapid technology of underground parts with the help of ultrasonics in organic solvents. The method, guaranteeing an in-depth cleaning of metallic surfaces and the removal of impurities from pores, is the only way of cleaning parts thoroughly.

The technology can be applied in foundries, for moving sand particles resulting from the casting process before, and after the heat-treatment operation, in dye works, metal-casting workshops, between jet processing operations or before the final parts are used for cleaning components inaccessible to conventional cleaning methods.

## OVER 80,000 APARTMENTS

Two urban dweller of Arges county localities has been ordered, this year, by 720 apartments, 130 more apartments than the plan provides. The total number of apartments built for working people in the county, in the last 20 years, has reached 80,000. At present, 88 percent of the urban population in this county area, lives in new apartment houses.



## THE AGE OF ROBOTICS

Presently there are some 25,000 robots in the world and estimations have it that by 1990 there will be approximately 200,000 of them. The importance and dimensions acquired by the design, production and usage of robots in the world have led to the conclusion that robotics will generate the third industrial revolution in the world.

The wide-scale introduction of robots in industry is a firm choice of the Romanian economic policy. Though recent, Romanian preoccupations in the field of robotics are quite diversified, boasting numerous achievements. Further down, we shall present a series of performances of the research and design activity carried out by enterprises and institutes engaged in the complex process of robotization.

## THE FIRST ROBOTS

The Automatica enterprise in Bucharest counts as one of the principal makers of industrial robots. The list of robots manufactured by Automatica includes the first Romanian industrial robot, with a mobile payload of 6.3 dN, a five degrees of freedom and a pick-and-place accuracy of 0.5 mm. The prototype was designed in 1980 by a joint team of specialists from the Automatica enterprise, the Institute of Scientific Research and Technological Engineering for Automation (ITA) and the Institute of Scientific Research and Technological Engineering for Computer Technology and Informatics (ICSTI-TOI), but on view at the Bucharest International Fair in 1981 and 1982, awarded the Prize of the Academy of the Socialist Republic of Romania in 1982. RIF 6.3 confirmed its efficiency from its first use as part and parcel of production programmes, namely in a continuous-welding cell set up at the Automatica enterprise in Bucharest. The next beneficiaries were Electronparolaj in Bucharest and the mechanical enterprise at Mirza. Presently, the automating enterprise of Pitești is testing two continuous-welding robotized cells with RIF 6.3.

Other achievements and the prospects of this robotics-related enterprise were presented by us by engineer Gheorghe Iancu, head of the industrial robots production department. "This year's agenda of Automatica's accomplishments has already registered a family of fixed and mobile blumanipulators able to carry a 150-kg heavy payload. We propose ourselves to make the prototype of six-degrees-of-freedom industrial robot specializing in spot welding and an assembly robot. We also plan to introduce in the production line a robot which is a vital component in ensuring the repeatability of production at a robot. At the same time, learning from our experience that it is easier to make a robot than a robotized application, we focus our attention on the production of robotized cells which include both robots and manipulators, practically aiming at becoming suppliers of turn-key robotized applications."

## NUMEROM 770

A control equipment for evolved robots, meant especially for mounting robots; the system has artificial intelligence elements; it is made in a MULTIPROM solution (typical module system, AMS bus, printed circuit boards of the double Eurocard type) and ensures the simultaneous control of two robots.

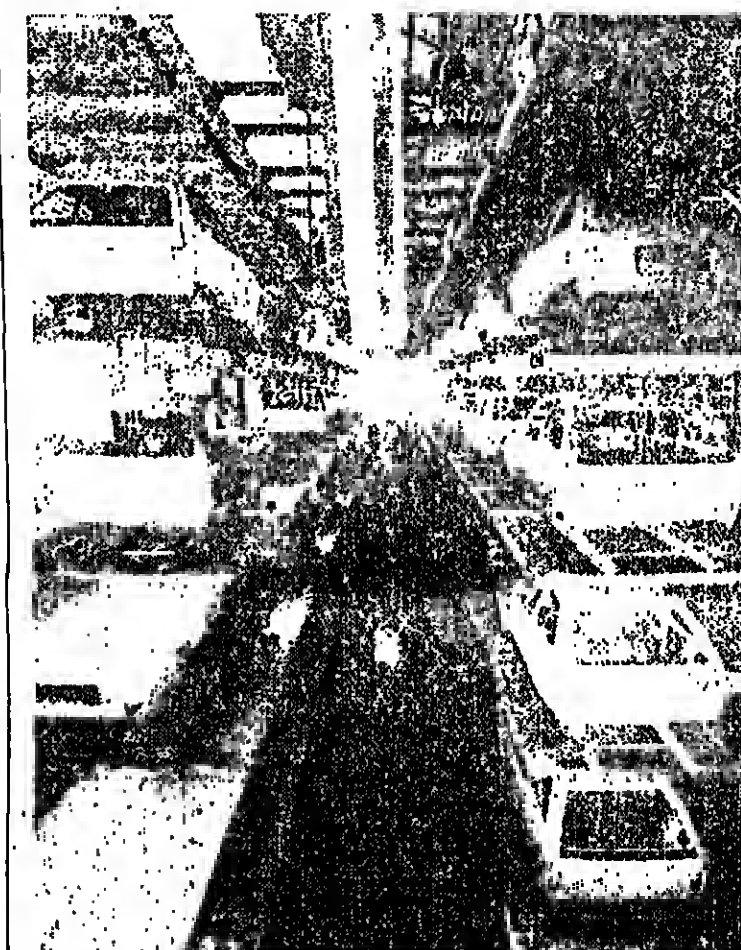


## CONTROL SYSTEMS

Depending on the type of software and on the training method, industrial robots are divided into several categories: repetitive robots, numerically controlled robots, computer-aided robots, programmable robots, intelligent robots, etc.

Since 1980 the Romanian Institute of Scientific Research and Technological Engineering for Automation (ITA) has developed three generations of numerically controlled robots equipment: the SIFOR equipment with industrial mini-computer, aimed at robotized machine tools and continuous welding; NUMEROM 670 — a device made in a multiprocessor structure, cheaper than the previous one because of its typified modulation but equally reliable in point of performance, and the up and coming NUMEROM 770 for the control of more sophisticated robots.

The first control system, SIFOR, was improved for RIF 6.3 made by Automatica Enterprise.



## A NEW GENERATION

At the Institute of Scientific Research and Technological Engineering for Computer Technology and Informatics (ICSTI-TOI), the researchers' attention is focused on obtaining more advanced robots, equipped with evolved sensors, meant for the applications of assembly-mounting and other complex industrial applications. These are: detector systems for industrial robots and industrial applications in general (VEDA); higher-level languages and action planning systems for robots; computer-aided design systems for industrial robots and robotized systems (CAD). Engineer Magda Radu explained: "Detector systems will be used for the inspection, recognition and automatic measuring, the management of technological processes, of industrial robots and systems. In view of two main programming systems: an exclusive system for industrial applications and a system with more general character improved FELIX PC professional personal computers. The CAD system has, among its advantages, the fact that it eliminates the construction of models, 80 percent of the operations necessary for the construction and programming of robot systems being made by the manipulation of graphic modules."

Three research directions of ICSTI-TOI are the first steps made in Romania for the production of a new generation of smart robots.

Page written by  
MILENA MIHAESCU ■

## ENERGY RECOVERY IN THE TEXTILE INDUSTRY

A patent was recently granted to the invention of the specialists at the Institute for Technological Design for the Light Industry concerning the recovery of thermal energy from waste water in the textile industry.

The method envisages the selective recycling and processing of heat carriers in their physico-chemical characteristics measured at the discharge points, followed by the introduction of the working agents into economic systems adequate to each purpose.

The utilization of this solution cuts fuel consumption by 15-18 percent, that is, by an average 400 tons of conventional fuel a year in the dyeing, bleaching, heat washing and mercerizing processes in the textile industry.

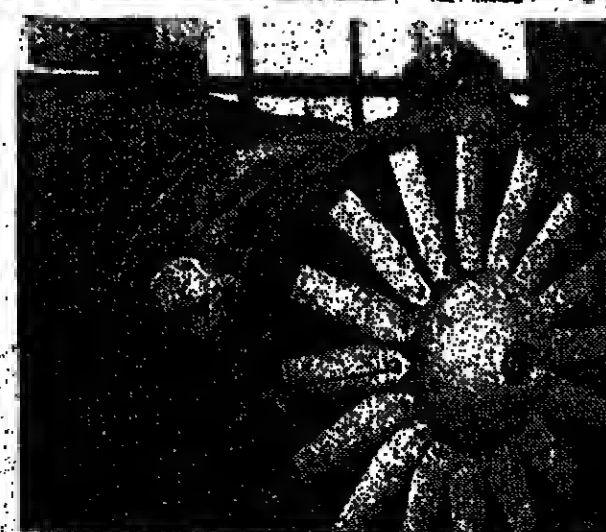
## THE SECOND TURBO-GENERATOR

The boilers on the construction site of the Suceava thermoelectric plant are now concentrating their efforts on the early commissioning of the second turbo-generator. They are intensely working at weldings and the mounting of the second pressure system boiler and the

water and steam supply circuit, needed by the power group with a view to starting hydraulic tests. At the same time, the thermo-mechanical equipment is mounted in the power house, the pre-assembly operations being effected at ground level.

## COMPUTER-ASSISTED METAL CUTTING

The ventilator enterprise in Rudarest has developed a programme system for computer-aided metal cutting, which favours the more rational use of the metal, the growth of labour productivity and of the quality of execution. Other measures applied recently pursue the increase of the machines, equipment and installations' multipurposefulness, the redesigning of ventilator tools, the assimilation of more types and sizes, as well as the automation of various welding operations. By promoting original technical solutions and the new technologies, this year alone the above-mentioned enterprise has received a production increment worth over two million lei.









## A REMARKABLE ENGINE EXPERT

Pitești hosts a higher educational institute which, though modest in size and having comparatively few workshops, boasts a remarkable outflow of ingenuity. A bogus station and a bogus-driven electric generator, urethane and oil-gas fueling devices for tractors and cars, multipurpose vehicles fitted with ingenious devices saving up on fuel, exceptional ideas turned into simple yet useful apparatus, and tools — all these make up the educational unit where the teaching staff, at

keeps finding something to alter. For instance, together with his students, he developed an economizer impoverishing the gas-air mixture in fueling cars. The result: Dacia-1300 cars thus fitted rarely exceed eight litres of gas per hundred of kilometres driven in towns. Or: the so-much disputed variable distribution — a technology making Dacia-1300 cars need no more than four litres per hundred of kilometres. The system is sure to find drivers willing to try it and the invest-

mentally thrown away. ...Inertial devices can take over the kinetic moment of an engine in overcut and can reproduce it, when needed, starting, without the use of a battery, other engines — said the expert on another occasion. The Ministry of Agriculture and Food Industry got the message, he plays the accumulator industry. ...When starting the engine in the morning, the piston's movement in the cylinder starts without lubrication. A short,



rule or — in certain variants — multifunctional. Thus, fuel economizers, gear recoveries, the logic redesigning of the hood and boat, the possibility of filling the car with both gasoline and methane gas add up. Pitești obviously cars become, with small expenses economic, reliable, profitable.

...And a conclusion: not al-

ways big, spendthrift institutes with big wage funds bring the expected revolution and improvements to world science. And very often, ideas coming from gifted individuals turned by golden hands into unexpensive tools, apparatuses, devices, machines and technologies prove useful to man's civilization.

## LIFE-GIVING WATER

An old Romanian fairy-tale says that Prince Charming, after fighting the dragon, nursed his wounds with water from a life-giving spring. His wounds healed and, the story has it, Prince Charming recovered his strength. That is the way the story goes. But the truth is that, according to some Romanian folk traditions, certain springs have really miraculous properties. Villagers know it and often treat themselves with this mysterious life-giving water. This was the starting point for the investigations conducted by Timisoara researchers Gheorghe Lucaci and Vasile Abrudan and by dr. Ion Marinici of Bucharest: they sought that under certain circumstances water pulsates! Hence the idea of the existence of some water components, the development of an adequate apparatus and the emergence of water A, water B and neutral water, followed by a patent for this surprising application of the laws of biophysics to folklore! In water A, a leaf remains green for scores of days; two electrodes in a tank filled with such a liquid show on a tv screen the processes taking place in the ordinary H<sub>2</sub>O, that is, pulsations like heartbeats — living water indeed! — which could be per-

ceived by those who attended the first scientific movie in the world was made by the Romanian scientist dr. Gheorghe Marinici in 1958. He presented the signs of neurologic diseases discovered in the way people walked. These images are a scientific premiere — the first biogram of man's gait. Orthopedists then studied the distribution of pressures on the sole — static and dynamic.

A century later, psychiatrist Virgil Endrescu continued the work of his brilliant forerunner. The only difference was that he was helped by a computer.

As is known, man's gait is as rapid as a cheetah, more elastic, firm or on the contrary hesitating, uncertain, with or without big lateral oscillations, with natural or heavier pressures from one foot to another. Man's gait can say many things about diseases and former accidents, about routine, prejudices, tiredness, tempera-

ture or longer disorders of the psycho-biological tones. In order to avoid any subjective interferences, dr. Virgil Endrescu built an "automatic analysis bridge for walking", a patented invention which is an absolute Romanian first recognized as such by the specialized press and literature ever since the year the system was patented (1973). At the International Cybernetics Congress held in Bucharest, the work of the Romanian physician took one hour to be presented, although the time limit was too minute. Soon after that the text of the work was published by Modern Trends in Cybernetics and Systems, Springer-Verlag, Berlin, Heidelberg, New York, 1974, vol. 2, pp. 1183-1204. The idea that psychiatry could not be expressed through a mathematical language had ground because of counter arguments.

The analysis bridge of the gait was perfected a year later, and since 1984 has been functioning as an on-line automatic system in conditions of real time not only to the benefit of psychiatry, but also for other medical specialities — pediatrics, gerontology, sports medicine, occupational orientations, occupational medicine, medical examinations, etc. The physician, in telecommunication with artificial intelligence, finds out, through graphic and mathematical models, displayed on the computer terminal, the most objective results for diagnosis and treatment.

ALEXANDRU MIRONCU

## PHYSICIAN-PATIENT WORDLESS COMMUNICATION

In a general conception, any examination made by the physician cannot be conceived without verbal communication. Nevertheless, science has confirmed that, beyond words and traditional tests, there are also

other signs, that can be used in establishing diagnosis. The skeptical attitude (taken sometimes even by learned men) started to fade away. Extra-verbal communication in medicine receives a more explicit



Dr. Virgil Endrescu, head of the psychiatry department of the Satu Mare Municipal Hospital, supervising a patient's computer-assisted handwriting test.

### THE LANGUAGE OF MAN'S GAIT

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Beyond the strict contents of words, even in an everyday conversation, the sound signal — the voice — has an overwhelming importance for therapy. That truth was confirmed, once more, by researches carried out under the aegis of the Academy of Medical Sciences in Timisoara.

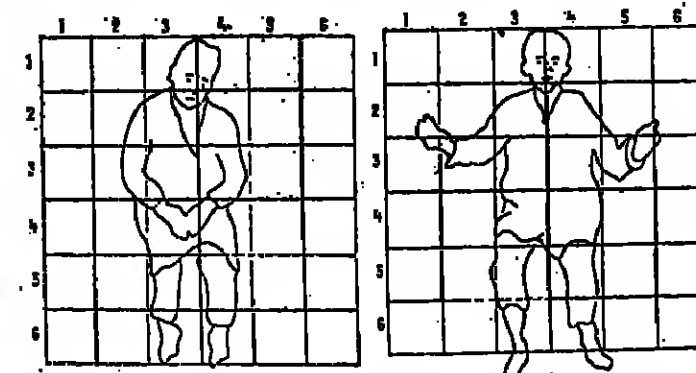
In the first months of my residency, remembers dr. Virgil Endrescu, the head of the psychiatry department at the Satu Mare Municipal Hospital in Satu Mare, "I was amazed by which the specialist physicians could discover his patients' ailments just by talking to them over the phone about the weather and their families. One March evening in 1971, I tape-recorded

the values of all patients interned in the hospital with the same diagnosis; the next day the common physical spectrum, the model of talking characteristics of the respective diseases appeared on an electronic oscilloscope.

The physical spectrum of the voice is rendered by the frequency variations corresponding to the pitch and variations of tones in a dynamics studied in time. Their image is called vocogram. Psycholinguistics recognize the speech message and even the individual vocal print by analyzing such images.

In computer technology and the one governing artificial intelligence, the analysis of specific spectrums for each phoneme making up words leads to the computer's deciphering and recognizing of the verbal message. This type of analysis ignores the voice's individual variations and those given by various accidental states of the same person, as a useless "noise".

...But, that very "noise" is the



The first grid used in 1971 had nine (3 x 3) squares/quadrants covering hand movement area on three positions horizontally and three vertically, making a total of 30 squares on the grid.

one used by investigations, in establishing diagnosis through the method used in Satu Mare. There, the computer attentively analyzes the gait, the four or five, the stress or stress intensity in speech, processes and displays them within the physician and his patient's hand which after observing on a monitor what is in front of a tape recorder, the image, formula and mathematical model of the respective value. They are seen, on the computer screen, in a three-dimensional image, the "portrait" of voices. According to mathematical processing there are characteristic displays grouped in types and classes of values for healthy sick and perfectly healthy persons. It is known that certain anatomical defects or afflictions of the larynx easily lead to pronounced changes: only a phonological intervention can change the "sound" of somebody's voice; hormones influence vocal uttering, which makes extremely useful the automatic analysis of this non-verbal language in assessing the development of children or in geriatrics. In psychiatry as in neurology, the system is very useful in studying brain vascular accidents. By means of such this analysis the intensity of the effect of one drug or another can be distinguished. There is only a step from here to the pharmacological research proper by means of the automatic analysis of non-verbal languages.

But, there is also another important use: the physician himself could establish the best communication model, the most efficient form for psychotherapy by recording his voice along to that of his patient. He could analyze the conditions in which the patient becomes confident, at peace, and even optimistic. He could pass to the elaboration of a real efficient communication strategy with the sick person.

Therapy through music or by means of the Sibelius training are already known and generalized methods to the whole world. The new, at the Medical Research Centre with Computer Technology in Satu Mare consists of the creation of the multidimensional psychotherapy lab. This lab first establishes, through the physician-patient dialogue that the symptoms (objective or subjective) of the disease are generated by disorders of the neurovegetative system. According to each case, the patients use either a room where deafness in vivid colors are projected with orange or dominant colour, later to striking melodies and breaths are saturated by positive tones, or on the contrary, are in a relaxing environment with a green field, a clear blue sky, breathing negative tones and resting in sedative magnetic fields. By means of the bio-feedback apparatus the patients can survey the functional state of their brain learning how to control the installation of the relaxed state. Even certain patients suffering from epilepsy are able, by using the bio-feedback equipment built in Satu Mare, to control the onset of alpha waves and avoid the imminent periodical crises.

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### REVEALING GESTURES

Thanks to the results obtained by scientifically simplifying the "non-verbal language", the first Medical Research Centre with Computer Technology in the country was created over the Municipal Hospital in Satu Mare, in 1978. That event was simultaneous with two others: the opening of the National Institute of Medicine in Satu Mare and the award of another invention patent to dr. Virgil Endrescu for "Automatic Analysis Equipment and Method of Extra-Verbal Communication" (1979).

Therefore, modern, objective investigation of data communication by non-verbal ways and all conditions in progress. That happened by the use of computer technology in determining characteristics of writing and drawing, for a more recent date, the analysis system at the gesture distribution proved to be a very useful collaborator for a neurologist or psychiatrist. By means of a TV camera to a computer the interpretation of gestures leads to revealing diseases about what is happening at a certain moment in the "black box" of the mind, subtle and sometimes contradictory but core of the information metabolism.

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head with the institute's measuring board, are striving to get elements not only to reproduce information (from a source) and apply it to mechanisms and machines, but also to try each time to "split hairs", dissect things and analyze them, suggest a way to improve them, replace them if need be, to preserve a dynamic dialectics of the well-done, yet continuously improvable, thing.

An exceptional export is to be found among the Pitești professors: associate professor Vasile Dumitrescu. He knows all about cylinders, pistons, nozzles, valves. Explained by him, the fuses of Otto, Diesel or Wankel engines, the Carnot cycles become easy to understand even to beginners. The world of machines seems to obey him unreservedly. Tamed, the engines gurgle in his palm, while he

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very short period, says German specialist Orinwall, enough to consume the equivalent of 50 km from the engine's life by simply turning the ignition key. Amazing! Can't anything be done? Yes, said the Pitești specialist — a device which can be charged with oil under pressure (pushed by the very engine) and discharged in the morning by means of a valve, directly in the engine, before its ignition! Another idea: the installation of a compensation counter-weighting mechanism, as engine specialist V. Dumitrescu calls it — one recovers vibrations, so harmful to the driver's life and efficiency. In Pitești, at the higher education institute, abate have counterweights. In the morning, engines are pre-ated — slowly by means of a cable. The cars have, aimed all of them, new bodies — aerodyna-

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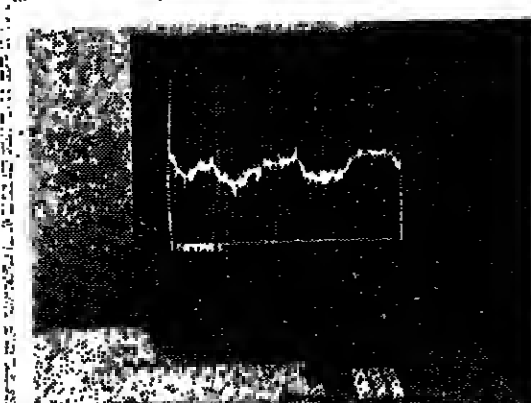
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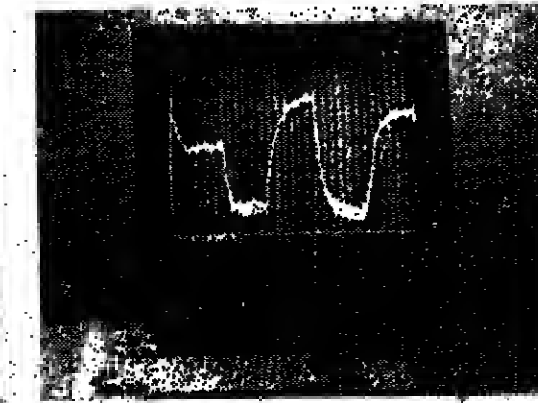
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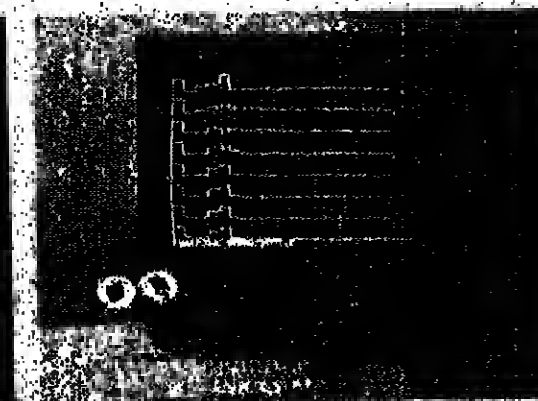
Gait A. Total pressure graph



Gait A. Lateral opening graph



Representation of voice intensity variations on eight colour-coded frequency lines



Graphical-mathematical representation of voice parameters, processed with the same patient

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## THE MAIN CHARACTER: GEROVITAL

Next month, between June 9-11, Bucharest will host the National Gerontology and Geriatrics Congress. The proceedings to be held in the lobby of the Gerovital Hotel will focus on the following topics of great scientific interest: the biology of aging, cerebral aging, the elderly's participation in social life. The highlight of the Congress will probably be the symposium which is to debate numerous aspects referring to the present and future of the Asian therapy.

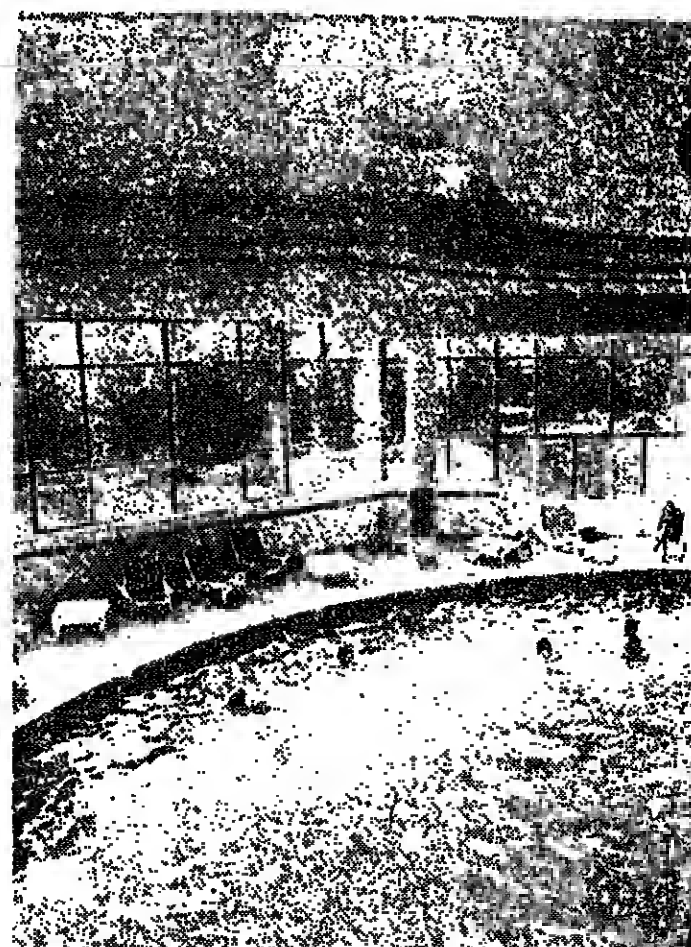
The National Institute of Gerontology and Geriatrics, jointly with the Ministry of Tourism has organized a programme of scientific and tourist activities, which includes, among others, a trip to Roman town (Neamtu county) where a few years ago an Old Age University was set up, under the aegis of the above-mentioned Institute. The participants in the Congress are to deliver lectures there. The National Gerontology and Geriatrics Congress is to be attended by 500 experts from Ro-

mania and numerous other countries where the Gerovital and Ashvini medicine, just like the therapy known as Aemilian Ana Aslan's name, are well known and successfully applied: Italy, Spain, Greece, Portugal, the USSR, Argentina, Brazil, West Germany, Switzerland, France, the USA, Belgium, Ecuador, Israel, Bulgaria, Czechoslovakia, India and Mexico which is to host next year's Congress.

Let us also mention that Aemilian Ana Aslan, today aged 91, who discovered the beneficial effects and action of procaine in fighting aging phenomena, who created and patented at home and abroad two highly important products meant to prevent biological aging, is the head of the Geriatrics Institute in Bucharest set up in 1982 as the first body of its kind in the world. Its way of organization was recommended by WHO to all similar institutes subsequently founded in various countries.

## MEDALS FOR ROMANIAN GYMNASTS

At the European Junior gymnastics championships held at Avignon, France, the Romanian sportsmen won eight medals: one gold, five silvers and two bronzes. Gabriela Potorus secured the gold medal and European champion title in the beam event, with 10.503 points. She also clinched two silvers in the individual all-around competition (28.390 pts.) and in the uneven bars (19.678 pts.), and a bronze in the floor exercise (10.675 pts.). Eugenia Puiu won the silver medal in the beam event (19.375 pts.) while Crislina Bontas obtained the bronze medal in the individual all-around competition (28.050 pts.). In the men's contest, Cristian Brezvan and Adrian Ciucă secured the silver medals in the floor (19.150 pts.) and vault (10.175 pts.) events respectively.



## THREE GOLDEN BELTS

Bucharest hosted the 17th edition of The Golden Belt International boxing tournament. The competition was attended by sportsmen from ten countries, including world and European champions, national champions, winners of prestigious contests. Of the nine Romanian boxers qualified to the final, Daniel Dumitrescu, Francisc Vagias and Nikita Patze obtained golden belts. In a remarkable final bout, featherweight Daniel Dumitrescu clearly outboxed H. L. Gonzalez from Cuba. In the first round, the Romanian countered the Cuban's blows rather timidly but was of his best in the next two rounds when he dominated his opponent visibly, winning a spectacular 5-0 points decision.

Repeating his Havana feat, where he won the world title, inside the distance, junior world champion Francisc Vagias floored Cuban boxer A. Hernandez in the Bucharest final with a crushing right hook in the first round.

Demonstrating their remarkable hand speed and punching power in the finals, Daniel Dumitrescu and Francisc Vagias fully justified their selection for the Olympic team.

The last Golden Belt of the Romanian sportsman was won by super weight Nikita Patze. Our representative took the belt after the referee halted the bout in the first round considering Bulgaria F. Stobnenov was too badly injured to continue the fight.

Other Golden Belts at the 17th edition of the international box tournament were won by S. Uftimirev, E. Akimov, V. Karpusha, R. Solov (the USSR), L. Mariosy, S. Tederov (Bulgaria), M. Yribarren, J. Gonzalez (Cuba) and N. Nardello (Italy).

Photo: NICOLAE PROPIR ■ ELENA MIHAI ■



IOAN T. MORAN ■

## AN INGENUOUS AND ENTERPRISING PLANE MAKER

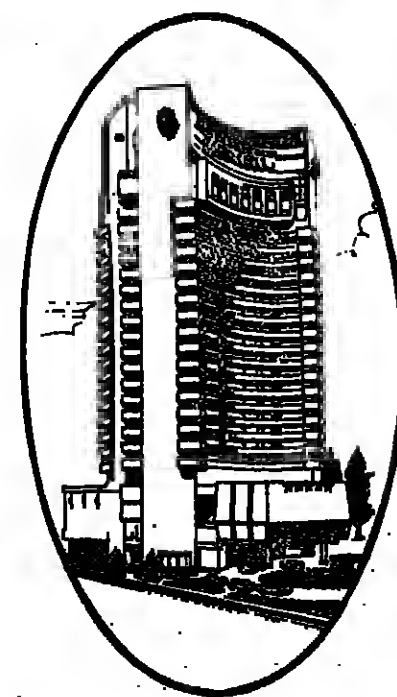
He has been flying since he was 15, he has practised gliding in Cluj, he has been a gliding instructor, he has practised parachuting since he was 17, and he took up hang-gliding at 41; he is the first to have built and used hang-gliders in Romania. Thanks to him, over 200 persons have been trained in this field and have done over 2,800 flights. This is about all when accounts for the Paul Tisandier Diploma of the International Aeronautics Federation awarded to Arpad Kics of Arad in the fall of 1985, for the almost 40 years in which he has ventured on the wings of the wind. Previously, he had also got the C silver badge from the IAF, which is awarded for a continuous three-hour gliding, over a 50-km distance and going up to 1,000 m, conditions that to a beginner seem impossible to fulfil.

In spite of all this he felt he had done too little for gathering gliding followers and his discontent made him pass on to the building of a very light plane. Chaired type, piece by piece, on his own account, this design has been mentioned in the History of Aviation, that has recently appeared. Among the benefits of this apparatus, Arpad Kics points out the noiseless one that, when handled carefully, it does not get in anyone's way, unlike other apparatus, its depth is in its

and at the front. Even if one is not a perfect pilot, one can fly with this small-height apparatus. Besides pilot's training, it can be used for supervising the traffic, taking photographs of terrain, and above all, in agriculture, performing operations from uniformly spreading fertilizers to finding out swampy areas. In its construction, apart from the apparatus will undergo flight tests at the beginning of autumn, then will be patented, constructed and mass produced. Another benefit is that it has a reduced fuel consumption, like a motorbike (in the Arpad Kics version, its engine is that of a 352 250 cc motorbike) and it does not need special adjustments to take off and land. When he finishes the construction of this ultra-light apparatus, Arpad Kics will not stop designing and building new apparatus. In his workshop, in the attic at 28 G. Dimitrov street in Arad, he has already started making a model of a variable pitch at the ground level, an important device for sports flights. To Arpad Kics, who, alongside himself as a 41-year-old sportsman, could come from gliding, that is, walking in the air, from the "imponderability" he has discovered for himself and for others, through his wonderful flying apparatus.

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